St Mary's Catholic Primary School

Science Topic Overview and Progression of Skills

EARLY YEARS FOUNDATION STAGE CURRICULUM
Understanding the World - Science

EYFS Statutory Educational Programme:

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world.

3 and 4 Year Olds	**Understanding the World** • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice **Communication and Language** • Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" **Personal, Social and Emotional Development** • Make healthy choices about food, drink, activity and tooth brushing.
Reception	**Understanding the World** • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them. **Communication and Language •** Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts. Personal, **Social and Emotional Development** • Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - tooth brushing.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	*use vocab to talk about what they see, hear and feel in the natural world. *Name and describe objects, events, materials and living things. *Explore and observe the world around them. *Use senses to make observations. *Collect observations over time. *Compare noticing similarities and differences. *Sort and group things with given criteria. *Test things out to answer questions. *Work with others to test ideas and talk about problems and answers. *Talk to people to ask questions and use books, photos, internet to answer questions.	*ask simple questions and recognise that they can be answered in different ways *observe close using simple equipment *perform simple tests *identify & classify *use observation & ideas to suggest answers to questions *gather and recording data help in answering questions	*ask simple questions and recognise that they can be answered in different ways *observe closely, using simple equipment *perform simple tests *identify and classify *use observations and ideas to suggest answers to questions *gather and recording data to help in answering questions	*ask relevant questions and use different types of scientific enquiries to answer them *set up simple practical enquiries, comparative and fair tests *make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers *gather, record, classify and present data in a variety of ways to help in answering questions *record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables *report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions *use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions *identify differences, similarities or changes related to simple scientific ideas and processes	*ask relevant questions and use different types of scientific enquiries to answer them *set up simple practical enquiries, comparative and fair tests *make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers *gather, record, classify and present data in a variety of ways to help in answering questions *record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables *report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions *use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions *identify differences, similarities or changes related to simple scientific ideas and processes *use straightforward scientific evidence to answer questions or to support their findings	*plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary *take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate *record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs *use test results to make predictions to set up further comparative and fair tests *report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations *identify scientific evidence that has been used to support or refute ideas or arguments	*plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary *take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate *record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs *use test results to make predictions to set up further comparative and fair tests *report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations *identify scientific evidence that has been used to support or refute ideas or arguments

PLANTS	*Explore outdoors ie collecting leaves, seeds. *Sort collections by similarities and differences. *Know how to respect and care for our environment. *Know the key features of a plant lifecycle. *Plant seeds and care for plants. *Name some common plants. *Draw and label plants and trees.	*Identify and name common plants including deciduous and evergreen *Identify and describe basic structure of flowering plants and trees	*Observe and describe how seeds and bulbs grow into mature plants. *Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	*Identify and describe functions of different parts of flowering plants *Explore requirements of plants for growth (Air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant. *Investigate ways in which water is transported in plants. *Explore the part that flowers play in life cycle of flowering plants inc pollination, seed formation, seed dispersal.			
Living things and Habitats	*Look for worms and minibeasts in their setting. *Know how to respect and care for living things. *Observe the world around them and draw plants and animals. *Recognise that some places are different from others.		*Can compare differences between things that are living, dead, never been alive. *Identify that most things live in habitats to which they are suited and describe how habitats provide basic needs of different plants and animals. *Identify and name plants and animals in their habitats inc microhabitats. *Describe how animals get their food from plants and other animals, food chains and identify and name sources of food.		*Recognise that living things can be grouped in a variety of ways. *Explore and use classification keys to group, identify and name organisms. *Recognise that environments can change and that this can pose dangers and have an impact on living things.	*Can describe difference between life cycles of mammal, amphibian, insect, bird	*Describe how living things are classified into broad groups according to common characteristics, based on similarities and differences inc micro-organisms, plants and animals. *Give reasons for classifying plants and animals based on specific characteristics. *Describe the life process of reproduction in some plants and animals.
Animals inc Humans	*Explore body parts and how they move. *Make connections between features in our families and differences. *Begin to understand their own life story using photos and memories. *Use props and toys to explore families.	*Identify and name a variety of common animals inc. fish, reptiles, birds, amphibians and mammals. *Identify and name carnivores, herbivores	*Notice that animals have offspring which grow into adults. *Find out about and describe basic needs of animals for survival – water, food, air. *Describe the importance for humans of exercise, eating the right amount of different	*Identify that animals need the right types and amount of nutrition, they cannot make their own food, they get nutrition from what they eat. *Identify that humans and some animals	*Describe simple functions of the basic parts of the digestive system in humans. *Identify the different types of teeth in humans and their simple function. *Construct and	*Describe the changes as humans develop to old age.	*Identify and name the main parts of the circulatory system in humans, describe the functions of the heart, blood vessels and blood. *Recognise the impact of diet, exercise, drugs and

	*Understand the key features of a life cycle ie birds, butterflies, chicks. *Be able to name and recognise familiar animals. *Know how to respect and care for animals in our world.	and omnivores. *Describe and compare structure of common animals. *Identify, name and draw and label the basic parts of the human body and say which part of the body is associated with each sense.	types of food, good hygiene.	have skeletons and muscles for support, protection and movement.	interpret a variety of food chains, identify producers, predators, preys.		lifestyle on the way their bodies function. *Describe the ways in which nutrients and water are transported within animals.
MATERIALS	*Explore natural phenomena ie splashing in puddles, exploring sand. *Explore materials for textures, sounds, smells, tastes. *Use senses and magnifiers to observe and explore materials. *Explore collections of natural objects and discuss properties. *Talk about changes in materials ie mixing, cooking, melting.	*Distinguish between an object and the material it is made from. *Identify and name a variety of everyday materials inc. wood, plastic, glass, metal, water, rock. *Compare and group together a variety of everyday materials on the basis of their simple physical properties.	*Identify and compare suitability of a variety of everyday materials inc. wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses. *Can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Rocks & Fossils** *Can compare and group different kinds of rocks on the basis of appearance and simple properties. *Describe in simple terms how fossils are formed when things that have lived are trapped within rock. *Can recognise that soils are made from rocks and organic matter.	**States of Matter** *Compare and group materials according to solids, liquids, gases. *Observe that materials change state when they are heated or cooled. *Measure or research temperatures that changes happen. *Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	**Properties and changes** *Compare and group everyday materials on the basis of their properties inc. harness, solubility, transparency, conductivity and response to magnets. *Name some materials that will dissolve in liquid form to form a solution and describe how to recover a substance from a solution. *Use knowledge of solids, liquids and gases to decide how mixtures might be separated. *Give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials. *Demonstrate that dissolving, mixing and changes of state are reversible changes. *Explain results in the formation of new materials and this kind of change is usually irreversible	
LIGHT & SOUND	*Explore how light can shine through objects. *Investigate shadows throughout the day.			**LIGHT** *Recognise that they need light in order to see things and that dark is the absence of light. *Notice that light is reflected from surfaces.	**SOUND** *Identify how sounds are made associating some of them with vibrating. *Recognise that vibrations from sounds travel through a medium to the ear.		**LIGHT** *Use the idea that light travels in straight lines to explain that objects are seen because they give our or reflect light into the eye. *Explain that we see things because light

				*Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. *Recognise that shadows are formed when the light from a source is blocked by a solid object. *Find patterns in the way that the size of a shadow changes	*Find patterns between pitch of a sound and features of the object that produce it. *Find patterns between the volume of a sound and the strength of the vibrations that produce it. *Recognise that sounds get fainter as the distance from the sound source increases.		travels from a light source to our eyes or from a light source to objects and then to our eyes. *Use the idea that light travels in straight lines to explain why shadows have the same shape as the object that casts them.
EARTH & SPACE **EVOLUTION & INHERITANCE** **FORCES**					**Forces** *compare how things move on different surfaces *notice that some forces need contact between two objects, but magnetic forces can act at a distance *observe how magnets attract or repel each other and attract some materials and not others *compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials *describe magnets as having two poles *predict whether two magnets will attract or repel each other, depending on which poles are facing.	**Earth & Space** *Describe the movement of the Earth and other planets. *Describe the movement of the moon relative to the Earth. *Describe the sun, Earth and Moon as spherical objects.	**Evolution &Inheritance** *Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. *Recognise that living things produce offspring of the same kind but normally offspring vary and are not identical to their parents. *Identify animals and plants that adapt to suit their environment and that adaptation may lead to evolution. *explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object *identify the effects of air resistance, water resistance and friction, that act between moving surfaces *recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

Electricity					*identify common appliances that run on electricity *construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers *identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery *recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit *recognise some common conductors and insulators, and associate metals with being good conductors		*associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit *compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches *use recognised symbols when representing a simple circuit in a diagram
SEASONAL CHANGES	*Explore outside in different seasons – share the wonders of each season. *Explore and collect materials ie seeds, leaves. *Understand the weather changes and how animals behave over the seasons.	*observe changes across the 4 seasons *observe and describe weather associated with the seasons and how day length varies	*observe changes across the 4 seasons *observe and describe weather associated with the seasons and how day length varies				